# EXHIBIT 14

**Exhibit No. 14**

**Infringement Claim Chart of U.S. Patent No. 8,605,361 by Optotune and Edmund Optics[1]**

Accused products including Optotune's liquid focus tunable lenses based on electrical actuation (including EL-3-10, EL-10-30-TC, EL-10-30-C, EL-10-42-OF, EL-16-40-TC, and ELM lens) and Edmund Optics' liquid lens products that integrate Optotune's electrically actuated liquid focus tunable lenses (including MercuryTL™ Liquid Lens Telecentric Lenses, Optotune Focus Tunable Lens, Tunable Compact Objective Liquid Lens Assemblies, LT Series Fixed Focal Length Lenses, and Dynamic Focus VZM™ Lens) (the "Accused Products") infringe each element of the Asserted Claims of U.S. Patent No. 8,605,361 (the "'361 Patent"). Further, Optotune and Edmund Optics instruct their customers regarding the use of the Accused Products to enable the use of the features identified throughout this chart. Optotune and Edmund Optics intend and instruct that their customers use these features in a manner that practices each element of the Asserted Claims. Plaintiff contends each of the following limitations is met literally, and, to the extent a limitation is not met literally, it is met under the doctrine of equivalents.

[1] This claim chart is based on the information currently available to Plaintiff and is intended to be exemplary in nature. Plaintiff reserves all rights to update and elaborate their infringement positions, including as Plaintiff obtains additional information during the course of discovery.

| Claim | Accused Products |
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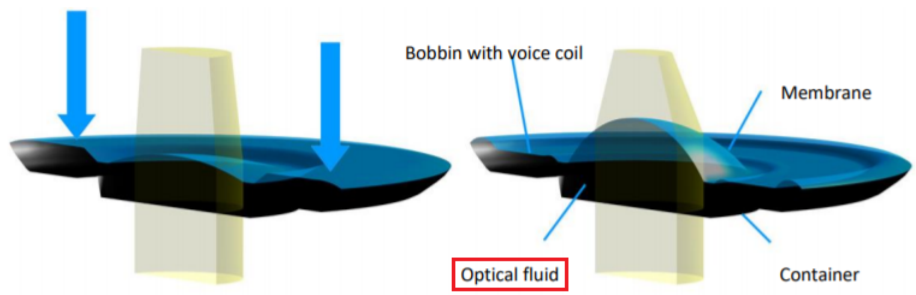
| [1Pre] A fluidic optical device, comprising: | The Accused Products meet this limitation.<br><br>The Optotune EL-10-30-C includes a fluidic lens device (i.e. electrically tunable lens EL-10-30-C with optical fluid). More specifically, the Optotune EL-10-30-C lens is a shape-changing lens based on a combination of optical fluids and a polymer membrane.<br><br>**Working principle**<br><br>The EL-10-30 is a shape-changing lens, as illustrated in Figure 5. It consists of a container, which is filled with an optical fluid and sealed off with an elastic polymer membrane. The deflection of the lens is proportional to the pressure in the fluid. The EL-10-30 has an electromagnetic actuator that is used to exert pressure on the container. Hence, the focal distance of the lens is controlled by the current flowing through the coil of the actuator.<br><br><br><br>*Figure 5: Working principle of the EL-10-30 series.*<br><br>Optotune EL-10-30-Series Spec Sheet at 6. |
| [1A] a first optical surface that includes an deformable material; | The Accused Products meet this limitation.<br><br>The Optotune EL-10-30-C includes a first optical surface (i.e., the membrane) made of a deformable material (i.e., elastic polymer). |

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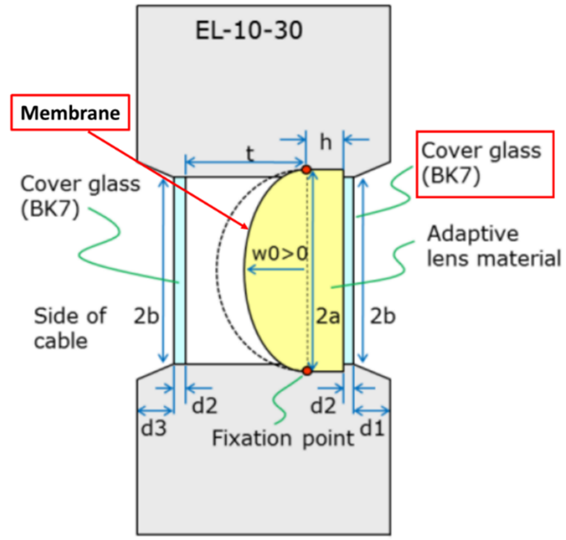
| | <br>Optotune EL-10-30-Series Spec Sheet at 5.<br><br>**Working principle**<br>The EL-10-30 is a shape-changing lens, as illustrated in Figure 5. It consists of a container, which is filled with an optical fluid and sealed off with an elastic polymer membrane. The deflection of the lens is proportional to the pressure in the fluid. The EL-10-30 has an electromagnetic actuator that is used to exert pressure on the container. Hence, the focal distance of the lens is controlled by the current flowing through the coil of the actuator.<br><br>Optotune EL-10-30-Series Spec Sheet at 6. |

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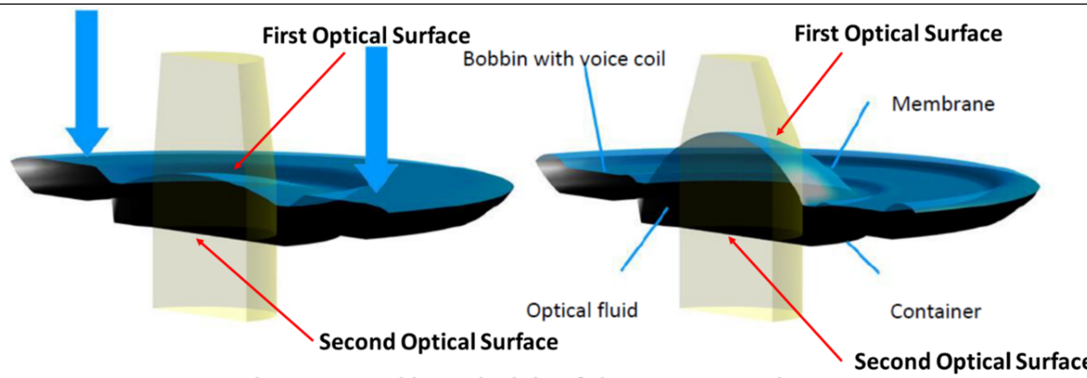
| | <br><br>*Figure 5: Working principle of the EL-10-30 series.*<br>Optotune EL-10-30-Series Spec Sheet at 6. |
| [1B] a second optical surface that includes a rigid material; | The Accused Products meet this limitation.<br><br>The Optotune EL-10-30-C includes a second optical surface (i.e., the cover glass) made of a rigid material (i.e., BK7 glass). |

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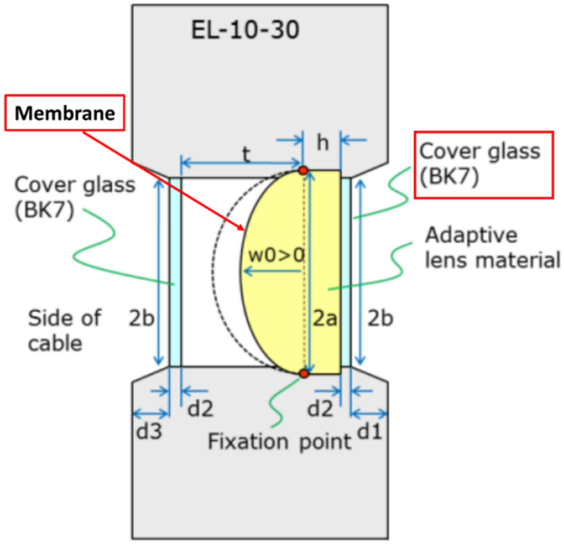
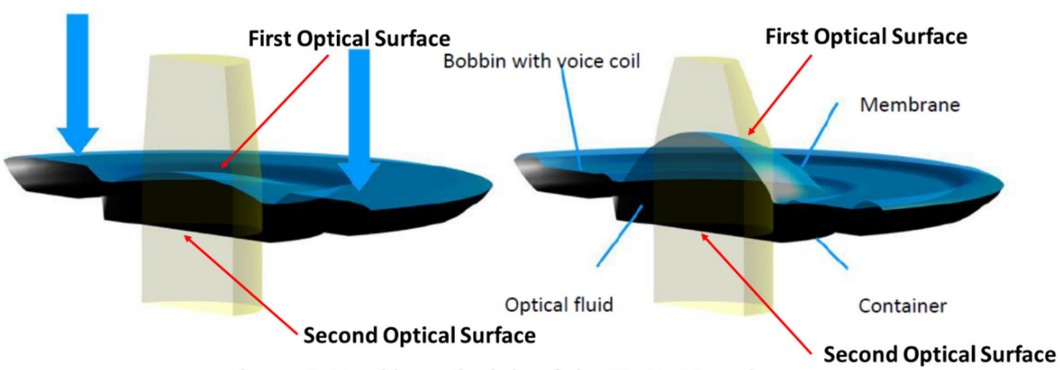
| | <br>Optotune EL-10-30-Series Spec Sheet at 5.<br><br>*Figure 5: Working principle of the EL-10-30 series.*<br>Optotune EL-10-30-Series Spec Sheet at 6. |

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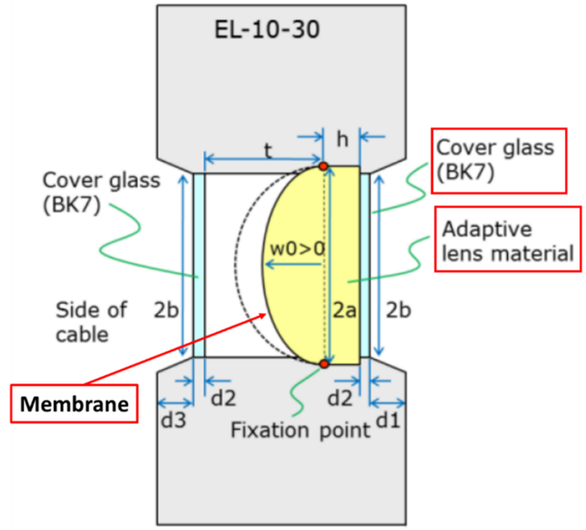
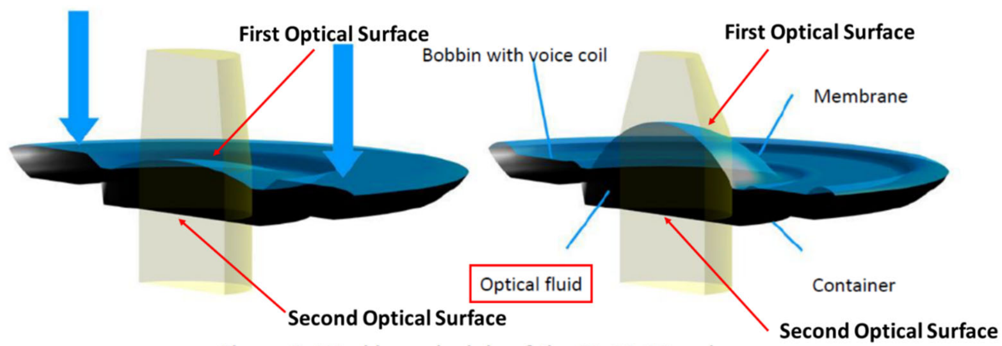
| [1C] an optical fluid disposed between first and second optical surfaces; | The Accused Products meet this limitation.<br><br>The Optotune EL-10-30 includes an optical fluid disposed between the first optical surface (i.e., membrane) and the second optical surface (i.e., cover glass).<br><br><br><br>Optotune EL-10-30-Series Spec Sheet at 5.<br><br><br><br>*Figure 5: Working principle of the EL-10-30 series.*<br>Optotune EL-10-30-Series Spec Sheet at 6. |

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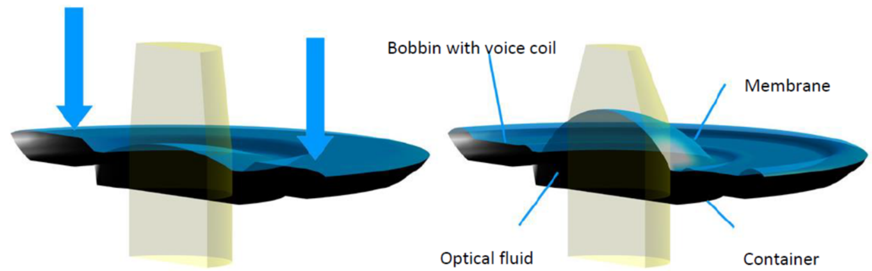
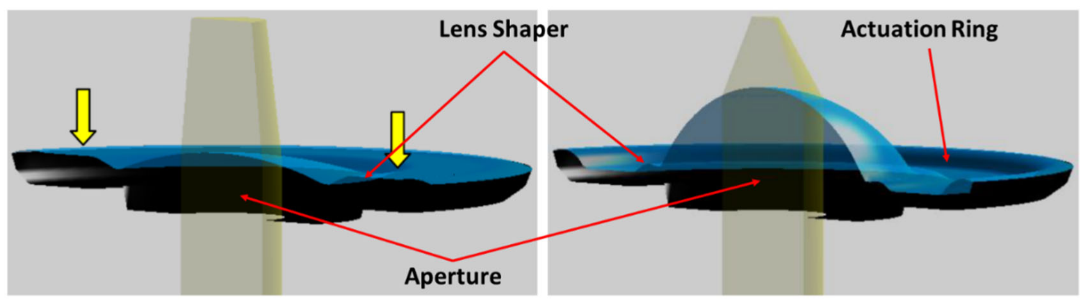
| [1D] and an actuator disposed in communication with first optical surface; | The Accused Products meet this limitation.<br><br>The Optotune EL-10-30-C includes an electromagnetic actuator to press the first optical surface (i.e., membrane).<br>**Working principle**<br>The EL-10-30 is a shape-changing lens, as illustrated in Figure 5. It consists of a container, which is filled with an optical fluid and sealed off with an elastic polymer membrane. The deflection of the lens is proportional to the pressure in the fluid. The EL-10-30 has an electromagnetic actuator that is used to exert pressure on the container. Hence, the focal distance of the lens is controlled by the current flowing through the coil of the actuator.<br><br><br>*Figure 5: Working principle of the EL-10-30 series.*<br>Optotune EL-10-30-Series Spec Sheet at 6.<br><br><br><br>Figure 3: Working principle of the Optotune's EL-10-30. In this case, the lens-shaper ring remains in place relative to the container. The only movement is a ring that pushes down on the membrane with increasing current in the outer part of the lens, thus pumping the liquid into the lens that forms in the center.<br>Optotune Focus Tunable Lenses and Laser Speckle Reduction at 3. |

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| | **i). Effect of membrane's deformation on focal length**<br><br>The ETL changes its focal length by deforming its polymer membrane. The deformation of the membrane is controlled by the applied pressure from the inside actuator. There are various actuators in the ETL, such as servo motor [21], direct current motor [22–24], photo-polymer [25], electromagnetic [26,27], piezo [17], liquid pumping [28] and dielectric elastomer [29]. The applied pressure $p_a$ is determined by its input power $E_{in}$ as expressed in Eq. (1), since the highest order of the above actuators is the second order. Either controlling the voltage or current can control the input power of the ETL. The ETL [30] used in this paper is controlled by its input current.<br><br>Calibration method for the electrically tunable lens based on shape-changing polymer at 3. |
| [1E] wherein activation of actuator results in a deformation of first optical surface and displacement of optical fluid, wherein deformation of first optical surface and displacement of optical fluid result in a change in an optical property of the device. | The Accused Products meet this limitation.<br><br>The Optotune EL-10-30 includes an electromagnetic actuator configured to apply an actuation force at the outer portion of the membrane (i.e., first optical surface), as indicated by the blue arrows in the figure below. The actuation displaces the optical fluid and deforms the central portion of the membrane (i.e., first optical surface). The deformation of the membrane (i.e., first optical surface) and the displacement of optical fluid changes the focal power (i.e., optical property) of the Optotune EL-10-30. |

**Working principle**

The EL-10-30 is a shape-changing lens, as illustrated in Figure 5. It consists of a container, which is filled with an optical fluid and sealed off with an elastic polymer membrane. The deflection of the lens is proportional to the pressure in the fluid. The EL-10-30 has an electromagnetic actuator that is used to exert pressure on the container. Hence, the focal distance of the lens is controlled by the current flowing through the coil of the actuator.

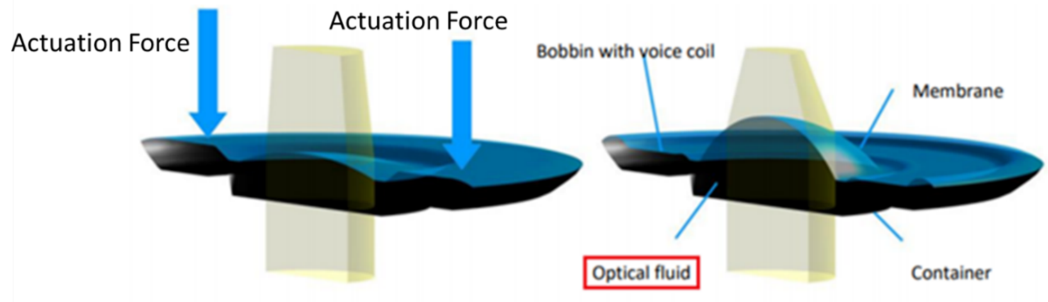


*Figure 5: Working principle of the EL-10-30 series.*

Optotune EL-10-30-Series Spec Sheet at 6.

**Resolution and reproducibility**

The step size of the focal power is limited by the resolution of the DAC of the current driver. For high precision applications a driver with 12 bits is recommended. As the relation between current and focal power is linear, the smallest step of e.g. the EL-10-30-C-VIS-LD about 0.0018 Dpt.

Unlike piezo systems, the EL-10-30 exhibits no hysteresis. The current through the coil induces a force, which is directly transferred onto the elastic membrane. There is no friction in the system. This means that at a constant temperature jumping between alternate current levels will always yield the same focal length. The effect of changes in temperature are described above. Optotune's Lens Driver 4 offers a focal power mode, which makes use of calibration data stored in the lens (EEPROM of the STTS2004). The absolute reproducibility achieved over an operating temperature range of 10 to 50°C amounts to typically 0.1 diopters. More details on the focal power mode are provided in the Lens Driver manual.

Optotune EL-10-30-Series Spec Sheet at 10.

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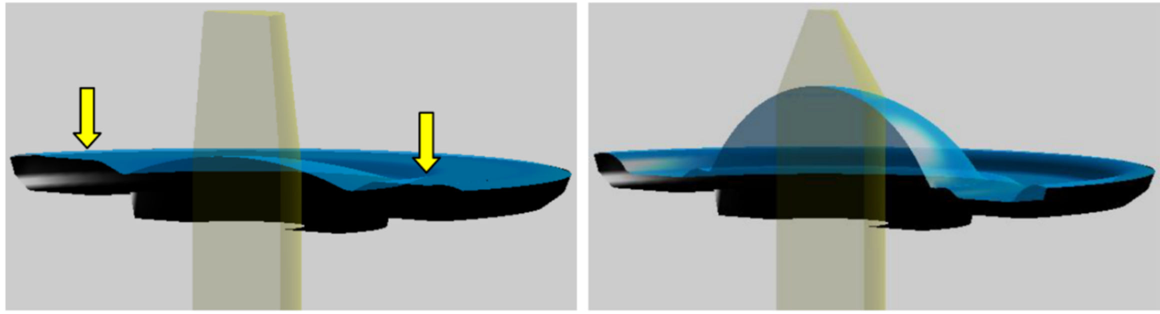
| | <br>Figure 3: Working principle of the Optotune's EL-10-30. In this case, the lens-shaper ring remains in place relative to the container. The only movement is a ring that pushes down on the membrane with increasing current in the outer part of the lens, thus pumping the liquid into the lens that forms in the center.<br><br>Optotune Focus Tunable Lenses and Laser Speckle Reduction at 3.<br><br>**i). Effect of membrane's deformation on focal length**<br><br>The ETL changes its focal length by deforming its polymer membrane. The deformation of the membrane is controlled by the applied pressure from the inside actuator. There are various actuators in the ETL, such as servo motor [21], direct current motor [22–24], photo-polymer [25], electromagnetic [26,27], piezo [17], liquid pumping [28] and dielectric elastomer [29]. The applied pressure $p_a$ is determined by its input power $E_{in}$ as expressed in Eq. (1), since the highest order of the above actuators is the second order. Either controlling the voltage or current can control the input power of the ETL. The ETL [30] used in this paper is controlled by its input current.<br><br>Calibration method for the electrically tunable lens based on shape-changing polymer at 3. |

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| | which is sealed off by an elastic polymer membrane. An electromagnetic actuator ring exerts pressure on the outer zone of the container, which changes the curvature of the lens. The optical power of the lens is controlled by changing the electrical current flowing through the actuator coil. Polymer-based ETLs achieve a faster focal change than other ETL types, while maintaining a relatively large aperture size. Consequently, they have been exploited in a wide<br>Speeded-Up Focus Control of Electrically Tunable Lens by Sparse Optimization available at 1. |
| [18Pre] A fluidic optical device, comprising: | The Accused Products meet this limitation. *See* claim 1Pre *supra*. |
| [18A] a first optical surface that includes an elastic material; | The Accused Products meet this limitation. *See* claim 1A *supra*. |
| [18B] a second optical surface that includes a rigid material; | The Accused Products meet this limitation. *See* claim 1B *supra*. |
| [18C] an optical fluid disposed between first and second optical surfaces; | The Accused Products meet this limitation. *See* claim 1C *supra*. |
| [18D] an actuator disposed in communication with first optical surface; | The Accused Products meet this limitation. *See* claim 1D *supra*. |
| [18E] wherein activation of actuator results in an elastic deformation of first optical surface and displacement of optical fluid;<br>wherein deformation of first optical surface and displacement of optical | The Accused Products meet this limitation. *See* claim 1E *supra*. |

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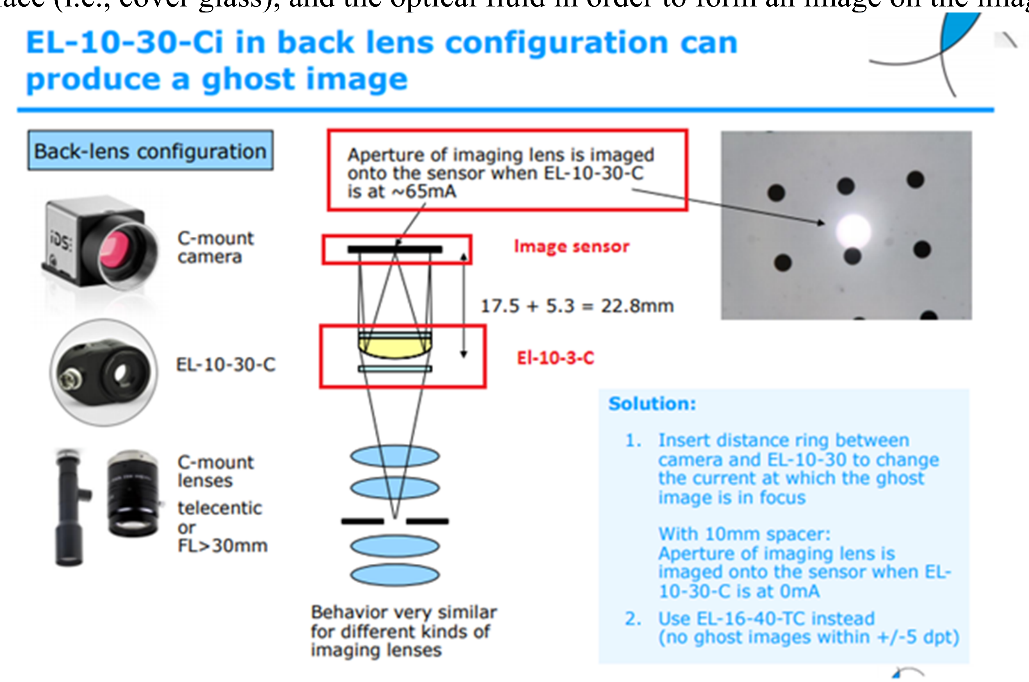
| fluid result in a change in an optical property of the device; and | |
| [18F] an image sensor configured to receive light transmitted through said first and second optical surfaces and optical fluid. | The Accused Products meet this limitation.<br><br>The Optotune EL-10-30-C can include an image sensor (e.g., camera) to offer a natural focusing solution, in which the incident light is transmitted through the first optical surface (i.e., membrane), the second optical surface (i.e., cover glass), and the optical fluid in order to form an image on the image sensor.<br><br><br>Optotune focus-tunable lenses for machine vision at 22. |

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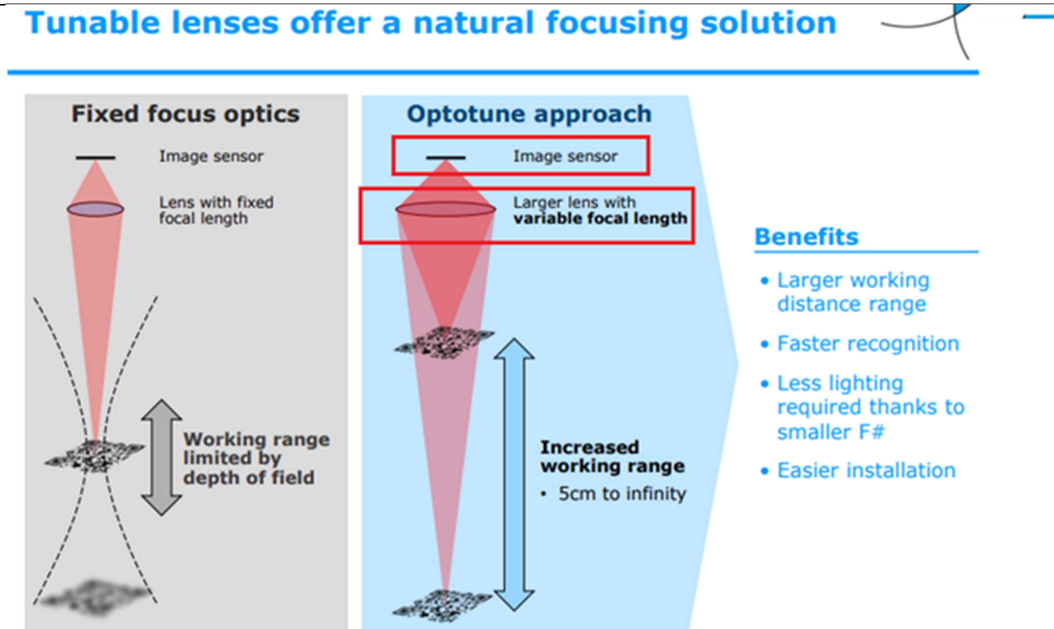
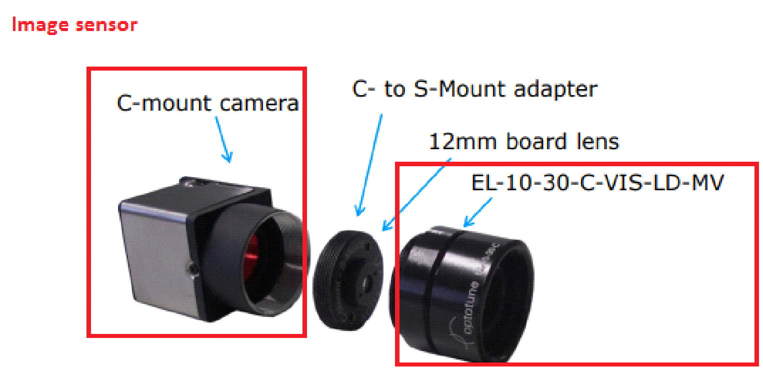
| | <br>Optotune focus-tunable lenses for machine vision at 4.<br><br>Optotune focus-tunable lenses for machine vision at 8. |